

## CLAIMS

1. A method for manufacturing a battery electrode plate, comprising the steps of:

5 mixing a solvent (3) with a polyolefin resin (1);  
preparing a gel-like solution (5) that is a gelled  
solution as a whole having a high viscosity by heating the  
mixture of the polyolefin resin and the solvent at a  
temperature at which a part or the whole of the polyolefin  
10 resin melts;

forming an insulation layer (8) by coating the gel-like  
solution on a surface of a positive electrode plate or  
negative electrode plate (7); and

15 drying the insulation layer by heating the positive  
electrode plate or negative electrode plate formed with the  
insulation layer.

2. The method for manufacturing a battery electrode plate according to claim 1, wherein the gel-like solution (5) is rapidly cooled, and after that it is coated on the positive electrode plate or negative electrode plate (7) so that the electrode plate and the insulation layer (8) are unitized.

3. The method for manufacturing a battery electrode plate according to claim 1, wherein a heating temperature in the drying step is set at a temperature equal to or above a boiling point of the solvent (3) in the gel-like solution (5),

and at the same time, equal to or below a melting point of the polyolefin resin (1).

4. The method for manufacturing a battery electrode plate according to claim 1, wherein polyethylene is used as the insulation layer (8), the polyethylene is mixed with the solvent (3), and the mixture is heated up to a temperature at which the polyethylene is thoroughly uniformly dissolved so as to prepare the gel-like solution (5).

5. The method for manufacturing a battery electrode plate according to claim 4, wherein the polyethylene used as the insulation layer (8) is fibrous.

6. A battery electrode plate prepared by the manufacturing method according to claim 1.

7. A nonaqueous-electrolyte rechargeable battery provided with the battery electrode plate according to claim 6.

8. A method for manufacturing a battery electrode plate comprising the steps of:

mixing a polyolefin resin (1) with a solvent (3);  
20 preparing a gel-like solution (5) that is a gelled solution as a whole having a high viscosity by heating the mixture to a temperature at which a part or the whole of the polyolefin resin melts;

adding a fluororesin and/or an imide resin to the polyolefin resin at any stage from the state where the polyolefin resin exists alone to the state of the gel-like

**solution;**

coating the gel-like solution on a surface of a positive electrode plate or negative electrode plate (7); and drying the gel-like solution to form the solution into an insulation layer (8) of the positive electrode plate or negative electrode plate by heating the positive electrode plate or negative electrode plate coated with the gel-like solution.

9. The method for manufacturing a battery electrode  
10 plate according to claim 8, wherein the fluororesin and/or  
the imide resin mixed with the solvent (3) is added to the  
mixture of the polyolefin resin (1) and the solvent.

10. The method for manufacturing a battery electrode  
plate according to claim 8, wherein the fluororesin and/or  
15 the imide resin mixed with the solvent (3) is added to the  
gel-like solution (5).

11. The method for manufacturing a battery electrode plate according to claim 8, wherein the fluororesin and/or the imide resin is added to the polyolefin resin (1), and the mixture is mixed with the solvent (3).

12. The method for manufacturing a battery electrode plate according to claim 8, wherein the gel-like solution (5) is rapidly cooled, and after then is coated on the positive electrode plate or negative electrode plate (7).

25 13. The method for manufacturing a battery electrode  
plate according to claim 8, wherein a heating temperature in

the drying step is set at a temperature equal to or above a boiling point of the solvent (3) in the gel-like solution (5), and at the same time, equal to or below a melting point of the polyolefin resin (1).

5        14. The method for manufacturing a battery electrode plate according to claim 8, wherein polyethylene is used as the polyolefin resin (1).

15        15. The method for manufacturing a battery electrode plate according to claim 14, wherein the polyethylene is  
10        fibrous.

16. The method for manufacturing a battery electrode plate according to claim 8, wherein polyvinylidene fluoride is used as the fluororesin.

17. The method for manufacturing a battery electrode plate according to claim 8, wherein polyimide resin is used  
15        as the imide resin.

18. A battery electrode plate prepared by the manufacturing method according to claim 8.

19. A nonaqueous-electrolyte rechargeable battery  
20        provided with the battery electrode plate according to claim  
18.